

### **REMARKS**

Claims 1, 9 and 19 are amended to more particularly point out that Applicants' rotary thermoforming machine comprises a thermoforming station that includes a mold section for molding the first thermoformable panel and a second mold section for molding the second thermoformable panel and are translatable such that the thermoformable panels engage one another, such as taught throughout the specification, including beginning at page 17, line 11 through page 19, line 2. In addition, the thermoforming station includes a loading assembly adapted to position an insert between the thermoformable panels, as taught at page 18, lines 6 through 13, and recited in claims 11 and 13, now cancelled.

Claim 7, 14 and 26 are amended to clarify the language relating to the plurality of bayonet sockets.

### **REJECTION UNDER 35 U.S.C. § 112**

Claims 7, 14 and 26 were rejected under 35 U.S.C. § 112 as being indefinite with regard to the term "like." The claims have been amended to eliminate the term and thereby clarify the claims. In view of this, it is respectfully requested that the rejection of claims 7, 14 and 26 be reconsidered and withdrawn, and that the claims be allowed.

### **REJECTION UNDER 35 U.S.C. § 102**

Claims 1-2, 9, 15 and 18-19 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,658,523, issued to Shuert in 1997.

Shuert describes an apparatus for forming twin sheet hollow plastic articles, column 1, lines 35-37. Referring to Fig. 1, at load/unload station 28, plastic sheets 22 and 24 are loaded in side-by-side arrangement. The sheets are heated and indexed to a hot forming station 32 shown more particularly in Fig. 2. In one section of the hot forming station, sheet 22 is molded by a preform 52 and a mold 56. Concurrently, sheet 24 is molded between a male mold 50 and a plug assist 58. In a second operation at the hot forming station, mold 56 slides with molded sheet 22 to a position underlying mold 50, whereupon the sheets are brought into contact and

fused, column 8, lines 19-33. Thus, in the apparatus of Shuert, the panels are loaded at a single work station in side-by-side arrangement and arrive at the hot forming station concurrently for simultaneous processing to produce a hollow article.

In contrast, Applicants' rotary thermoforming machine comprises first and second loading stations indicated at 50 and 52, are independently loaded whereat the first panel and the second panel into discreet sections of the carousel, page 6 lines 11-15. As the carousel indexes to move the panels between stations, the first panel and the second panel arrive at the thermoforming station in sequential steps. That is, the carousel rotates to carry the second panel to the thermoforming station, whereupon the second panel is formed, then rotates to carry the first panel to the thermoforming station, whereupon the first panel is formed and joined to the second panel, page 17, line 11, through page 18, line 17. Shuert teaches an apparatus that delivers twin panels to the hot forming station concurrently and does not teach or suggest delivering the panels in sequential steps. In addition, Applicants' machine includes a loading assembly at the thermoforming station for transferring an insert between the first and second molds for the first and second panels, page 18, lines 7-9. Shuert forms a hollow article and does not suggest loading an insert. Therefore, Shuert does not teach or suggest Applicants' rotary thermoforming machine.

Claim 1 is directed to Applicants' rotary thermoforming machine that includes a first loading station for loading a first thermoformable panel and a second loading station for loading a second thermoformable panel. Shuert shows an apparatus that includes a single load/unload station for loading both panels at the same time and in the same stage of the wheel assembly. Moreover, claim 1 has been amended to point out that Applicants' thermoforming station includes a loading assembly for positioning an insert between the panels. Nothing in Shuert teaches or suggests a product that includes an insert or, more particularly, a loading assembly for positioning an insert at the hot forming station. Thus, Shuert et al. cannot teach or suggest Applicants' invention as set forth in amended claim 1.

Claim 2 is dependent upon claim 1 and is not taught or suggested by Shuert for the reason set forth with regard to that claim.

Claim 9 is directed to a rotary thermoforming machine similar to claim 1, but including additional features preferred in the practice of Applicants' invention. As in claim 1, the machines comprises a first loading station and a second loading station for independently loading the first and second thermoformable panels. In contrast, Shuert shows a single load/unload station for concurrently loading the plastic sheets onto the same section of the wheel assembly. As a result, in Shuert the sheets arrive concurrently at the hot forming station, whereas the rotary thermoforming machine in accordance with claim 9 allows the first and second panels to be delivered in sequential steps. Moreover, claim 9 has been amended to point out that the thermoforming station includes an insert loading assembly for positioning an insert between the thermoformable panels, a feature not taught or suggested by Shuert. Thus, Shuert does not teach or suggest the rotary forming machine in amended claim 9.

Claims 15 and 18 are dependent upon claim 9 and are not taught or suggested by Shuert for the reason set forth with regard to that claim.

Claim 19 is directed to a rotary thermoforming machine similar to claim 1, but including additional features preferred in Applicants' invention. As in claim 1, the rotary thermoforming machine in claim 19 includes first and second loading stations, whereas Shuert loads sheets at a single load/unload station. Moreover, claim 19 is amended to more particularly recite that the thermoforming station includes an insert loading assembly for positioning an insert between the thermoformable panels, a feature not taught or suggested by Shuert. Accordingly, Shuert does not teach or suggest Applicants' invention as set forth in claim 19.

Therefore, it is respectfully requested that the rejection of claims 1-2, 9, 15 and 18-19 based upon Shuert be reconsidered and withdrawn, and that the claims be allowed.

**REJECTION UNDER 35 U.S.C. § 103 Based upon Shuert and Weisner et al.**

Claims 3, 16 and 21 were rejected under 35 U.S.C. § 103 as unpatentable over Shuert in view of U.S. Patent 4,447,200, issued Weisner et al. in 1984.

Claims 3, 16 and 21 are dependent upon independent claims 1, 9 and 19,

respectively. For the reason set forth with regard to the rejection of claims 1, 9 and 19, Shuert does not teach or suggest a rotary thermoforming machine having first and second loading stations and a thermoforming station that includes an assembly for positioning an insert between the thermoformable panels, as called for in the independent claims.

Weisner et al. is cited to show a sensor for detecting plastic sheet deformation during thermoforming. However, nothing in Weisner et al. shows a rotary thermoforming machines that includes a carousel assembly for translating thermoformable panels between stations. Moreover, Weisner et al. does not show such machine that includes first and second loading stations for independently loading first and second panels. Still further, Weisner et al. does not show such machine that includes a thermoforming station having a loading assembly for positioning an insert between thermoformable panels. Without these features, Weisner et al. does not make up the deficiency of the primary reference, Shuert. Therefore, the combination of Weisner et al. with Shuert fails to teach or suggest Applicants' invention.

Claim 3 is dependent upon claim 1. For the reason set forth herein, Shuert fails to show a rotary thermoforming machine that includes a first loading station and a second loading station, and further includes a thermoforming station that includes a loading assembly for positioning an insert between first and second thermoformable panels. Moreover, nothing in Weisner et al. teaches or suggest these features. Since the combination of Shuert and Weisner et al. does not show Applicants' invention as set forth in claim 1, it follows that it cannot show Applicants' claim 3 dependent upon claim 1.

Similarly, claim 16 is dependent upon claim 9. For the reasons set forth herein, Shuert does not show Applicants' rotary thermoforming machine as set forth in claim 9. Moreover, Weisner et al. does not show a rotary thermoforming machine and so cannot make up the deficiencies of Shuert. Therefore, the combination of references cannot show Applicants' inventions as set forth in claim 9, or dependent claim 16.

Claim 21 is dependent upon claim 19. Claim 19 is directed to Applicants' rotary thermoforming machine that includes first and second loading stations and thermoforming station that is not taught or suggested by Shuert. Nor are these features taught or suggested by Weisner et al. Therefore, the combination of references does not show Applicants' invention as set forth in claim 19 or in dependent claim 21.

For these reasons, it is respectfully requested that the rejection of claims 3, 16 and 21 be reconsidered and withdrawn, and that the claims be allowed.

**REJECTION UNDER 35 U.S.C. § 103 Based upon Shuert and Walker**

Claims 4, 11 and 23 were rejected under 35 U.S.C. § 103 as unpatentable over Shuert in view of U.S. Patent 4,571,320, issued to Walker in 1986.

Claim 4 is dependent upon independent claim 1. Claims 9 and 19 have been amended to include the limitations of claims 11 and 23, now cancelled. For the reasons set forth with regard to the rejection of claims 1, 9 and 19, Shuert does not teach or suggest Applicants' rotary thermoforming machine as set forth in the independent claims.

Moreover, Walker fails to make up the deficiencies. Walker is cited as disclosing suction lift cups. However, Walker describes an apparatus for molding a single thermoformable sheet 16. Thus, Walker et al. describes a robot 10 that removes a molded part and deposits for a preform sheet for subsequent molding. The reference does not teach or suggest a rotary thermoforming machine that includes a carousel for translating panels between a first loading station, a second loading station, a heating station, and thermoforming station and an unloading station. Further, the patent of Walker does not show a thermoforming station that includes a first platen for molding a first thermoformable panel and a second platen for molding a second thermoformable panel, or a loading assembly to interpose an insert between thermoformable panels. Without these features, Walker cannot teach or suggest Applicants' rotary thermoforming machine, even if combined with Shuert.

Claim 4 is dependent upon claim 1. Claim 1 is directed to Applicants' rotary thermoforming machine that includes a first loading station for loading a first

thermoformable panel and a second loading station for loading a second thermoformable panel. Further, claim 1 calls for a thermoforming machine that includes a first platen adapted to receive a first mold section for molding a first thermoformable panel and a second platen adapted to receive a second mold section for molding said second thermoformable panel, and further comprises a loading assembly adapted to interpose an insert between the thermoformable panels. Walker shows an apparatus for molding a single piece and so does not contemplate a machine that includes two loading stations or a thermoforming station that includes a loading assembly to interpose an insert. Even if combined with Shuert, the combination of references do not show a machine that includes first and second loading stations or a loading assembly at the thermoforming station for positioning an insert. Without these features, the references do not suggest Applicants' rotary thermoforming machine as set forth in claim 1, or independent claim 4.

Claims 9 and 19 have been amended to more particularly point out that Applicants' rotary thermoforming machine as set forth in that claim includes an insert loading assembly. Neither Shuert nor Walker, nor their combination, show a machine that includes an insert loading assembly. Therefore, the references fail to show Applicants' thermoforming machine as set forth in claim 9.

Accordingly, it is respectfully requested that the rejection of claim 4 based upon the combination of Shuert and Walker be reconsidered and withdrawn, and that the claim be allowed along with independent claims 1, 9 and 19.

**REJECTION UNDER 35 U.S.C. § 103 Based upon Shuert and Chun**

Claims 5-7, 12-14 and 24-26 were rejected under 35 § U.S.C. 103 as being unpatentable over Shuert in view of U.S. Patent 5,814,185, issued Chun et al. in 1998.

Claim 5-7 are dependent upon claim 1. Claims 12-14 are dependent upon claim 9. Claims 24-26 are dependent upon claim 19. For the reasons set forth herein, Shuert does not teach or suggest Applicants' rotary thermoforming machine as set forth in the independent claims. Chun et al. is cited as disclosing a twin sheet

thermoformer that includes drive means for raising and lowering platens and locking means for securing the platens. However, Chun et al. does not teach or suggest a rotary thermoforming machine that includes a first loading station and a second loading station. Further, Chun et al. does not show such machine including a thermoforming station that comprises an insert loading assembly. Thus, even if combined with Shuert, the combination of references fail to show these features of Applicants' invention.

Claim 1 is directed to a rotary thermoforming machine that includes a first loading station and a second loading station. In addition, claim 1 calls for a thermoforming station that includes a loading assembly adapted to position an insert between thermoformable panels. Shuert shows an apparatus that includes a single loading station and does not include an insert in the formed product, nor does Chun et al. show these features. Therefore, the combination of references cannot teach or suggest Applicants' rotary thermoforming machine as set forth in claim 1, or in dependent claims 5-7.

Claims 12-14 are dependent upon claim 9. Claims 24-26 are dependent upon claim 19. While including additional features preferred in the practice of Applicants' invention, claims 9 and 19 are similar to claim 1 in reciting a first and a second loading station and a thermoforming station that includes an insert loading assembly. Thus, the references do not show Applicants' rotary thermoforming machine as set forth in claims 9 and 19 or in the claims dependent thereon.

Therefore, it is respectfully requested that the rejection of claims 5-7, 12-14 and 24-26 be reconsidered and withdrawn and that the claims be allowed.

**REJECTION UNDER 35 U.S.C. § 103 Based upon Shuert and Brown**

Claims 8, 10, 17, 20 and 22 were rejected under 35 U.S.C. § 103 as being unpatentable over Shuert in view of U.S. Patent 3,925,140, issued to Brown in 1975.

Claim 8 is dependent upon claim 1. Claims 10 and 17 are dependent upon claim 9. Claims 20 and 22 are dependent upon claim 19. For the reasons set forth herein, Shuert does not show a rotary thermoforming machine in accordance with the independent claims. Brown shows an apparatus for fabricating a plastic object

that is hotter. The apparatus includes a single loading-unloading station 11, see column 3 beginning at line 37. Thus, Brown et al. does not show a rotary thermoforming machine that includes first and second loading stations, or includes a thermoforming station that comprises an insert loading assembly. Therefore, even if combined with Shuert, the references do not show these features of Applicants' invention.

Claim 1 is directed to a rotary thermoforming machine that includes a first loading station and a second loading station for loading first and second thermoformable panels. Both Shuert and Brown show apparatus with a single loading station. Furthermore, the machine in accordance with claim 1 includes a thermoforming station that comprises an insert loading assembly. Brown is directed to a machine for fabricating a hollow plastic object that does not include an insert. Nor does Shuert contemplate an insert molded with the thermoformable panels at the hot forming station. Therefore, the references, even if combined, do not show Applicants' invention as set forth in claim 1 or in the dependent claim 8.

Claim 9, upon which claims 10 and 17 are dependent, and claim 19 upon which claims 20 and 22 are dependent, are directed to a rotary thermoforming machine similar to claim 1, but including additional features preferred in Applicants' invention. Like claim 1, the rotary thermoforming machines of claims 9 and 19 include first and second loading stations, and a thermoforming station that includes an insert loading assembly. Thus, neither Shuert nor Brown, nor their combination, show Applicants' invention as set forth in claims 9 and 19, or in the claims dependent thereon.

Accordingly, it is respectfully requested that the rejection of claims 8, 10, 17, 20 and 22 be reconsidered and withdrawn, and that the claims be allowed.

For the reasons set forth herein, it is requested that the rejection of all claims be reconsidered, and that all claims be allowed.



**CONCLUSION**

It is believed that a full and complete response has been made to the outstanding Office Action. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (734) 302-6000.

Respectfully submitted,

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